

394/1310
2014

NATIONAL PEANUT BOARD / SOUTHEAST PEANUT RESEARCH INITIATIVE

Summary
Final Report (June 2015) for work done under project agreement entitled: "Peanut FARM Maturity project (NPB-SPRI)".

NPB Project # 394
BID # 1310
SID # GA-157
UGA Account # 2521RF328055

INSTITUTION: University of Georgia
Principle Investigator: Dr. W. Scott Monfort
EXPIRATION DATE: 30 June 2015
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FINAL REPORT: The following trial was planted in Georgia in crop year 2014 evaluating improved methods for peanut maturity determination.

Planting Date X Harvest Date Trial

A trial was established to evaluate an adjusted Growing Degree Day (aGDD) model for peanut to improve the accuracy of maturity determination. The model was developed by Dr. Diane Rowland (currently peanut physiologist at the University of Florida) and Dr. Wilson Faircloth (currently with Syngenta) when they were research scientists with the USDA-ARS National Peanut Research Lab. The model is now being run as a part of the "Peanut FARM" web site.

Peanut cultivar and planting/harvest date studies were conducted to further validate the utility of the adjusted growing degree day (aGDD) maturity model for predicting optimum maturity in peanut. Four peanut cultivars (Georgia-06G, Georgia-09B, Georgia-12Y, and Florun-107) were evaluated. Cultivars were planted on April 28 and May 12 at a seeding rate of 6 seed per foot. Adjusted degree day hours were calculated and assessed for maturity determination as cultivars reached 120 after planting. Cultivars were dug based on 2400, 2500, 2600, 2700 accumulated degree day hours and compared to currently used maturity profile board. Digging dates for the April 28 and planting were Sept 15 (2400), Sept 19 (2500), Sept 30 (2600), and Oct 10 (2700); and for the May 12 planting date were Sept 25 (2400), Oct 7 (2500), Oct 16 (2600), and Oct 30 (2700).

Yield data has been collected, and grade data were collect and analyzed. Data analysis indicated a three-way interaction between planting date, cultivar and harvest timing.

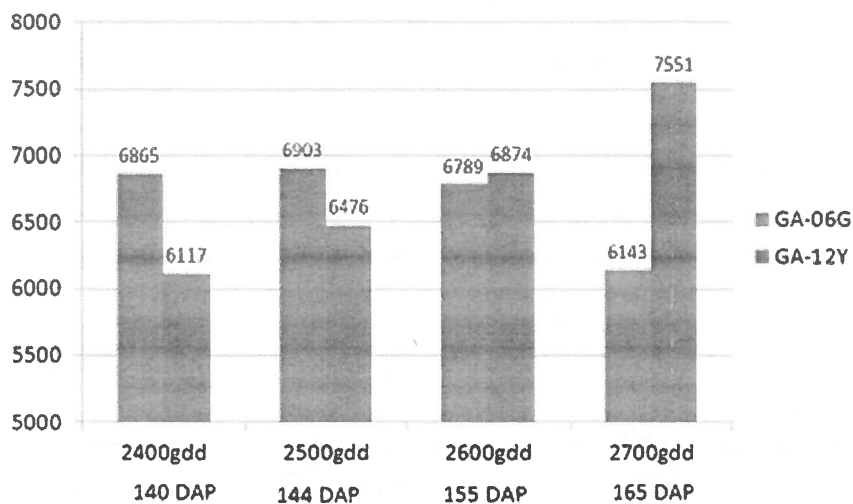
Results indicated 2500 aGDD hours to be the optimum maturity of most cultivars evaluated. Grades increased with aGDD hours which was expected.

Results – The table below provides the yield data.

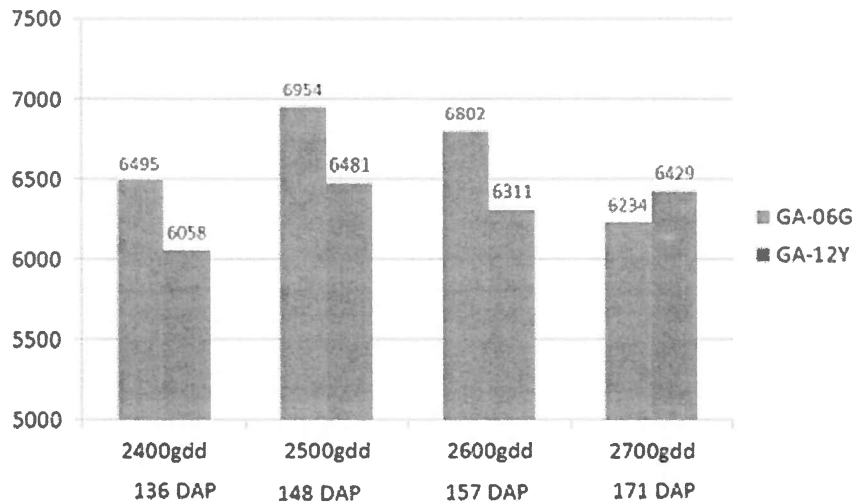
Yield (lbs/Acre)	Planting Date = April 28				Planting Date = May 12			
	Adjusted Growing Degree Days				Adjusted Growing Degree Days			
Cultivar	2400	2500	2600	2700	2400	2500	2600	2700
Georgia-06G	6865	6903	6789	6143	6495	6954	6802	6234
Georgia-09B	6785	6586	6635	6056	6575	6554	5432	4894
Georgia-12Y	6117	6476	6784	7551	6058	6481	6311	6429
FloRun '107'	6118	6007	6321	6126	6010	5902	5447	4805

Grade (TSMK)	Planting Date = April 28				Planting Date = May 12			
	Adjusted Growing Degree Days				Adjusted Growing Degree Days			
Cultivar	2400	2500	2600	2700	2400	2500	2600	2700
Georgia-06G	75.5	77.0	78.8	78.8	77.0	77.5	79.2	na
Georgia-09B	74.5	76.5	77.0	76.5	74.8	76.5	75.5	na
Georgia-12Y	72.0	74.8	74.3	75.3	72.5	74.0	74.8	na
FloRun '107'	70.8	73.3	75.8	76.8	72.8	73.5	75.3	na

Yield - Planting Date 1 (4/28/14)



Yield PD2 (5/12/14)



Summary

The data indicate that for the predominant cultivar, Georgia-06G, the adjusted growing degree days target of 2500 is right on target for maximizing yield. The April planting date seemed to trigger a continual increase in yield even after reaching 2500 aGDD's for Georgia-12Y. When planting as late as May 12, the aGDD accumulation wanes at 2600 level for all cultivars indicating it was getting too cool to mature the crop when planting that late.

The aGDD Model needs to be validated at the grower level in the near future.